

Management of Cardiospasm*

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THE clinical picture of cardiospasm is well known. Most physicians know persons who almost constantly are tortured by severe substernal pain, dysphagia and regurgitation of food. These symptoms usually render the patient unable to participate in any kind of social life. Eating in the presence of others becomes unfeasible, every attempt at swallowing food is accompanied by torturing distress and the patients become emaciated. Although death sometimes does occur as a result, it is relatively rare and frequently patients will be seen who have not been able to swallow normally for 25 to 30 years.

It seems that the fact that this disease is almost always curable is not as well known as the symptomatology. Time and again we encounter patients who have been treated with various methods without finding more than temporary relief. Such unsatisfactory treatment may even take place in our well equipped medical centers, and the procedures which could lead to complete cure are seldom carried out, obviously because they are unknown to the majority of the practitioners. In the following, neither the symptomatology nor the etiology nor the theories about the mechanism of cardiospasm will be discussed, but only the question of its management. There are four methods of treatment which require consideration, namely, (1) psychotherapy; (2) introduction of bougies through the spasm; (3) brusque dilatation of the spasm, and (4) surgical procedures.

1. Psychotherapy:

I believe I have been the first author to point to the frequent purely psychogenic etiology of cardiospasm. In fact, in 1926,³ I was so convinced of this etiology that I believed that all cases of cardiospasm were of psychogenic origin. Quite typical situations were found to precede the outbreak of the disease picture, especially emotional upset which had to be suppressed, "swallowed down" as it were. One patient, a soldier, was observed who had had an attack of acute gastritis in the first combat line. His staff sergeant, whom he could not contradict, had looked upon his vomiting as malingering, and he then developed the full-blown picture of cardiospasm. Such cases were seen so frequently that I believed I had the right to draw the conclusion that all cases of cardiospasm had a common psychogenic etiology. Already then it was found that the underlying emotional disturbances were not attached to very deep layers of the subconscious and that they very rarely con-

stituted a part of a major psychoneurosis. On the contrary, if present, these emotional disturbances are superficial and easy to recognize. Later I had to revise my opinion substantially.

It is true that some cases of cardiospasm are probably of purely psychogenic origin and—rarely—they are even connected with major psychoneuroses. There are many others, however, in which it is impossible to demonstrate clearly specific psychogenic factors. I have come to the conviction that many cases are of a purely somatic nature, the mechanism of which will not be discussed here. However, the question comes up whether or not some or all of these cases can be treated by psychotherapy. There is unanimity that this is not possible once the disease picture is fully developed. It is true that in the first few weeks simple suggestive treatment or hypnotic treatment may lead to a complete cure in some cases, but later a true conditioned reflex has developed, and psychotherapy then is useless even in cases in which the psychogenic character is manifest.

2. Introduction of Bougies Through the Spasm:

Before the mechanical procedures are discussed it should be stated that drugs of every kind are almost useless. Neither antispasmodics nor nitrates have any appreciable effect. Most frequently bougies and tubes of various kinds are used. Simple French elastic bougies may be introduced. Mercury bougies have been recommended, or blunt olives fastened on a whalebone staff. In occasional cases cure may be obtained by these measures, especially if exceedingly thick bougies or olives are used, but in the great majority they effect only a transitory relief. Manipulation in the depth of the dilated esophagus is never entirely devoid of danger and therefore there is no justification whatsoever to retain such unsatisfactory methods if much more successful methods are at our disposition.

3. Brusque Dilatation of the Spasm:

The true cures usually are possible only by brusque dilatation. This procedure has sometimes been called "stretching" of the esophagus, an unfortunate term. The fact is that the muscle fibers forming the constricting ring must be forcefully torn apart under the intact mucosa. If one succeeds in doing this, and only then, is an immediate cure without recurrence obtained. Different types of instruments have been described. Most widely used are the pneumatic and hydrostatic bags of Plummer,² Fitzgibbon¹ and others which are introduced at the tip of a tube into the cardia and which then are dilated either by inflation of air or by water pressure. Both air and

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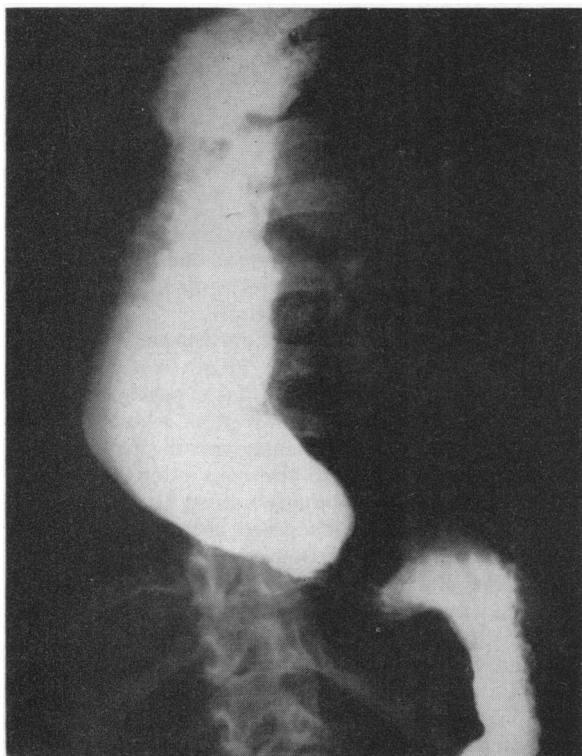


Figure 1.—*Cardiospasm*. Typical x-ray picture. Esophagus dilated and tortuous. Spastic constriction at the level of the diaphragm. Smooth outline of lower end of esophagus. Only small amount of barium in stomach.

water are filled into the bag under controlled pressure. With sufficient dilatation the musculature will rupture and cure will be obtained. The other type of instrument, the one which I personally recommend most, is the metal dilator which in folded condition is introduced so that it lies in the cardia and which then is fully spread in umbrella-like fashion so that its metal branches will brusquely dilate the cardia.

The appealing factor of the first method, that of the collapsible bag, is that its use looks rather simple. After its introduction air or water has to be introduced into the bag and the necessary pressure is simply read from a manometer. This however, involves a certain danger. We have no means of knowing what happens to the tissues in the depth and therefore it is not too surprising that sometimes ruptures of the esophagus occur which lead to death. Manipulation in the depth of the esophagus is always a risky procedure and an expert working with a hydrostatic dilator is certainly less likely to have an accident than an awkward beginner with a metal dilator. Yet I feel that to the expert the metal dilator will have greater appeal because at any moment he is able to feel with his fingers what he is doing in the depth and what resistance is offered by the tissue. In order to have full and gratifying success with either method, slow and deliberate procedure is imperative.

First the diagnosis must be established beyond any doubt. It is true that the x-ray pictures usually are

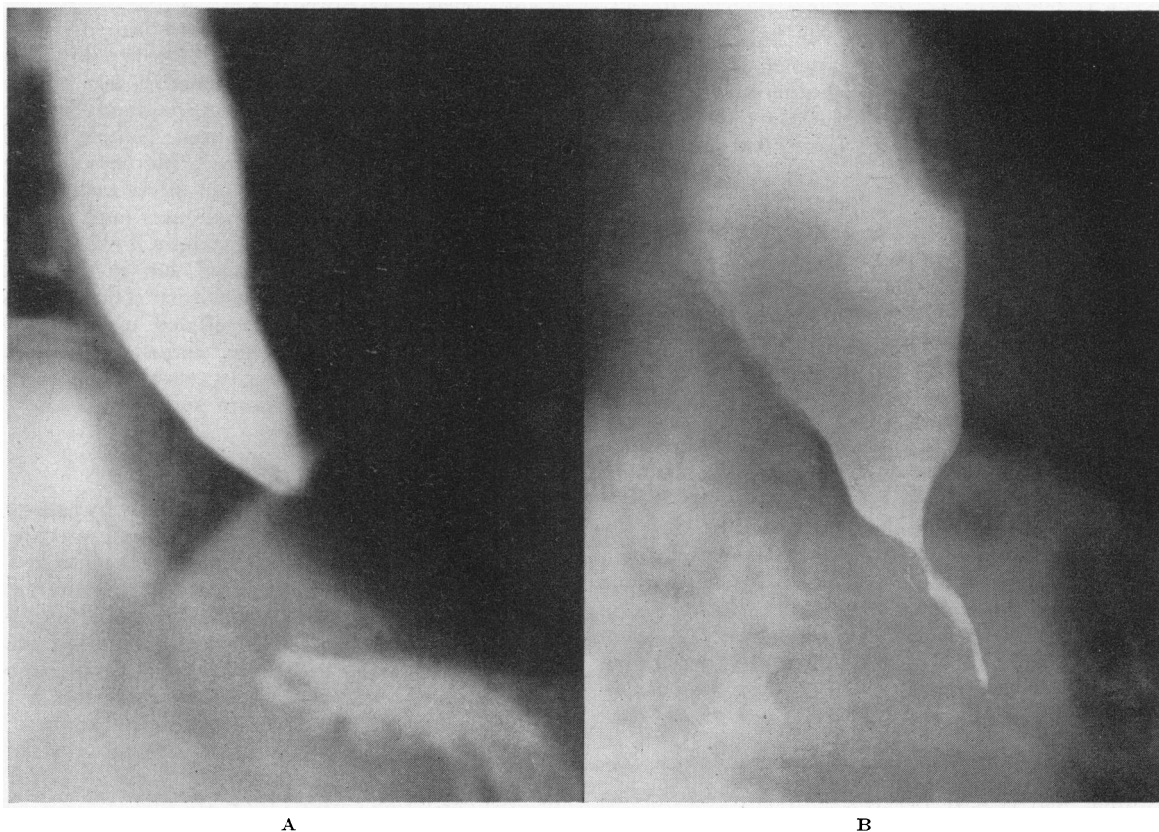


Figure 2.—*Two different types of cardiospasm*. In the case pictured at the left side the point of constriction is the hiatus of the diaphragm; in the case pictured at the right side the point of constriction is the cardia itself.

characteristic. Such a typical picture is shown on Figure 1. The esophagus is dilated and tortuous, its lower contour is perfectly smooth without any filling defect. It is of great practical importance that there are two different types of cardiospasm. Some authors have contended that the diaphragm itself forms the spastic constriction. Others have contended that the ring of the cardia is the narrowed point. Figure 2 shows that both types do occur. In Figure 2a the barium is stopped within the hiatus

of the diaphragm. In Figure 2b the barium fills out the abdominal esophagus and is stopped in the cardia. The dilating instrument must lie exactly within the constriction and therefore it becomes necessary to measure out the exact distance between the narrowed point and the row of the teeth. This should be done under fluoroscopic observation with the dilating instrument itself.

Figure 3 demonstrates the metal dilator. The left side of the picture shows the closed instrument with an elastic rubber attachment, which guides it through the esophagus and through the cardiospasm, and with the handle the compressing of which opens the dilating portion of the instrument. On the right side of the picture the opening mechanism of the instrument is demonstrated. In contrast to scar strictures or tumors of the esophagus, which should be passed only over a thread, no thread is needed in cardiospasm. In true cardiospasm, bougies and instruments will enter the stomach readily. Different attachments may be used, a mercury attachment being preferable in unusually difficult cases. It is clear that such a procedure would lead to disastrous consequences if any organic obstruction is present. By all means organic obstruction must be excluded before a brusque dilatation is carried out. This is not always possible by x-ray.

Figure 4 shows the x-ray picture of a patient referred for treatment under the diagnosis of cardiospasm, and this picture looks indeed rather characteristic. However, the peculiar behavior of the patient, his impatience, his rather uncooperative

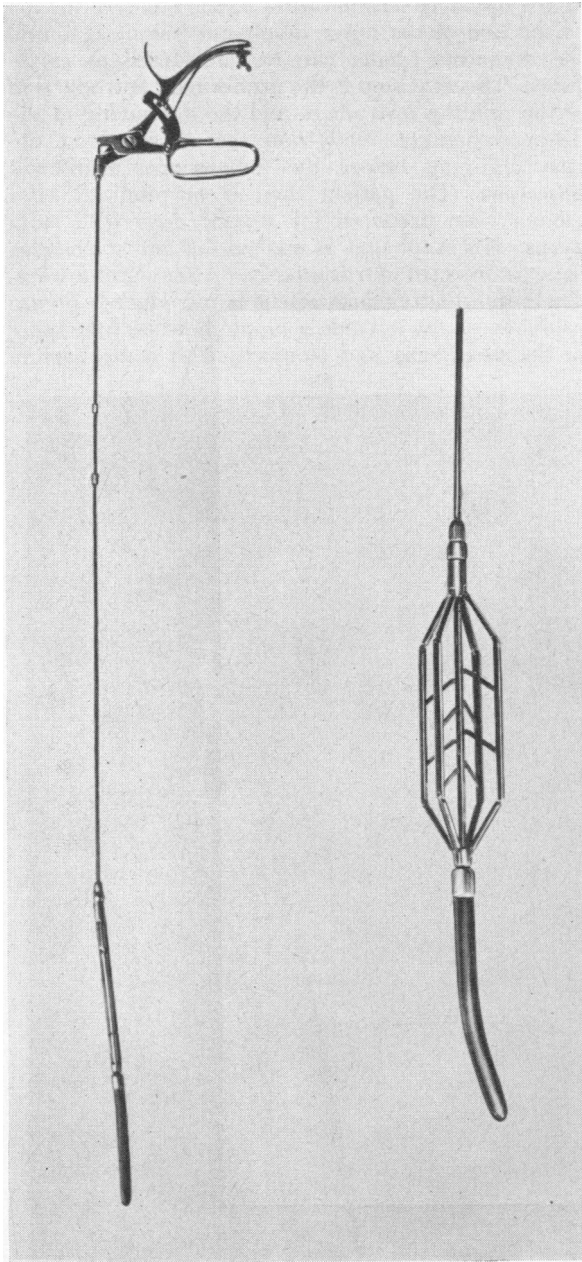


Figure 3.—Metal dilator for the brusque dilatation of the cardiospasm. Elastic attachment to the gastric side of the instrument. Dilating mechanism closed in left portion of picture; opened in right portion of picture; handle at upper side of picture permits sudden brusque opening of the instrument.

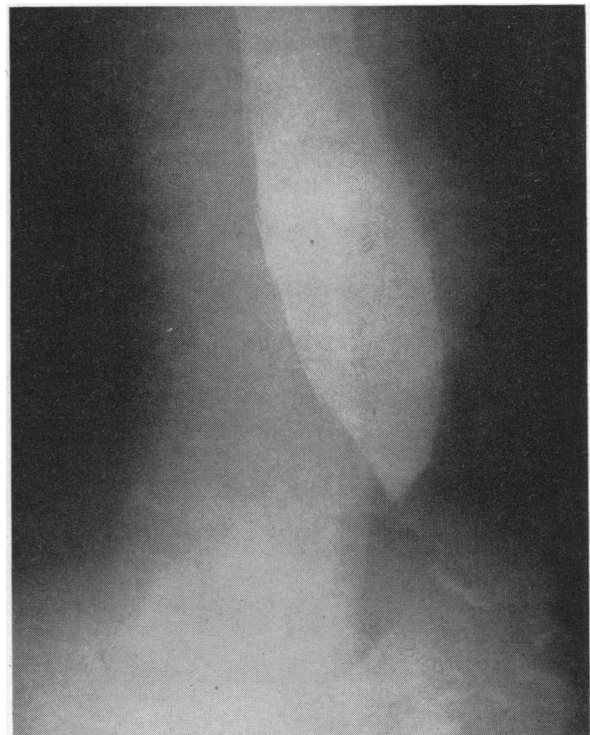


Figure 4.—X-ray picture of obstruction of the cardia simulating cardiospasm. The patient had a carcinoma. (See text.)

manner caused doubt about the diagnosis. Esophagoscopy was recommended and carried out. No organic lesion was discovered. On the whole, gastroscopy is the best endoscopic method for the exploration of a cardiospasm. The dilated bag of the lower esophagus can be observed readily through the gastroscope which then will enter the stomach without difficulty and which will permit visualization of the fornix of the stomach. In the case pictured in Figure 4, the gastroscope at two attempts refused to enter the stomach although a thick bougie did enter. Thereupon the further procedure was given up and the diagnosis held in abeyance. The patient was explored and carcinomatosis of the abdominal cavity was found.

The course of the procedure is as follows:

First the patient is x-rayed carefully, in various directions and under the use of numerous spot films. If then the diagnosis of cardiospasm seems to be fairly well established, he is trained to swallow tubes of different sizes. His throat should be anesthetized before each such procedure, as he will cooperate much more reasonably and quietly if the gagging and retching reflex has been suppressed. Each time, the

esophagus should first be emptied through a simple Ewald tube by gravity. This draining of the esophagus permits quiet working which otherwise would be constantly disturbed by vomiting and retching. The possibility of introducing even very large bougies does not establish the diagnosis of cardiospasm beyond any doubt. In the case of carcinoma just described a French bougie Number 45 entered the stomach quite readily.

The next step therefore is gastroscopy. If at gastroscopy no organic lesion of fornix, of the stomach, of the upper lesser curvature of the stomach, of the cardia and of the lower esophagus has been found, the diagnosis finally can be considered as established. The next step is the preliminary introduction of the dilating instrument and the measuring of the distance between teeth and the narrow and obstructing ring before the fluoroscope, a difficult procedure. The patient then is hospitalized after having been prepared for several days with sulfa drugs. His esophagus is washed out and some sulfa drug is injected intravenously. After careful anesthesia the dilating instrument is introduced. Figure 5a shows on the left side a simple Rehfuß tube lying in the esophagus and stomach, with some barium

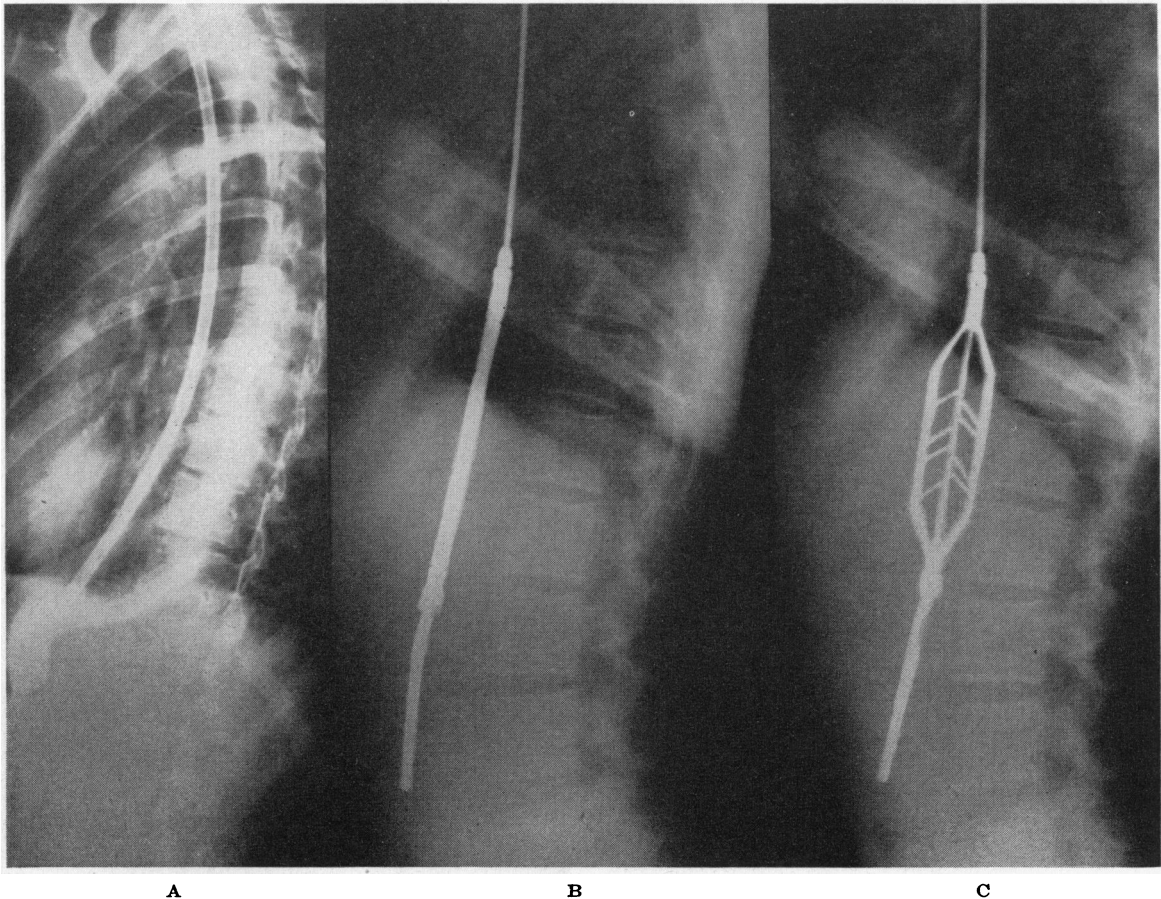
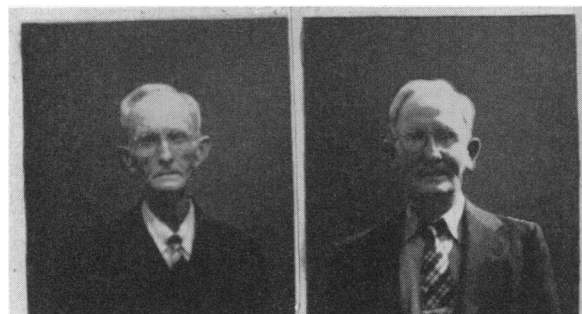


Figure 5.—*Brusque dilatation in a case of cardiospasm.* (a) X-ray picture of the patient with Rehfuß tube in stomach; barium indicates the location of the spasm at the cardia below the diaphragm. (b) X-ray picture of same patient, the metal dilator having been brought into the correct location. (c) X-ray picture of same patient. The brusque dilatation being carried out; the branches of the dilating instrument are spread and disrupt forcefully the musculature of the cardia under the intact mucosa.

indicating the place of the narrowing. The dilating portion of the instrument has to lie in this place. Figure 5b shows the closed instrument introduced, and Figure 5c shows the opening of the instrument within the narrowing ring of the cardia.

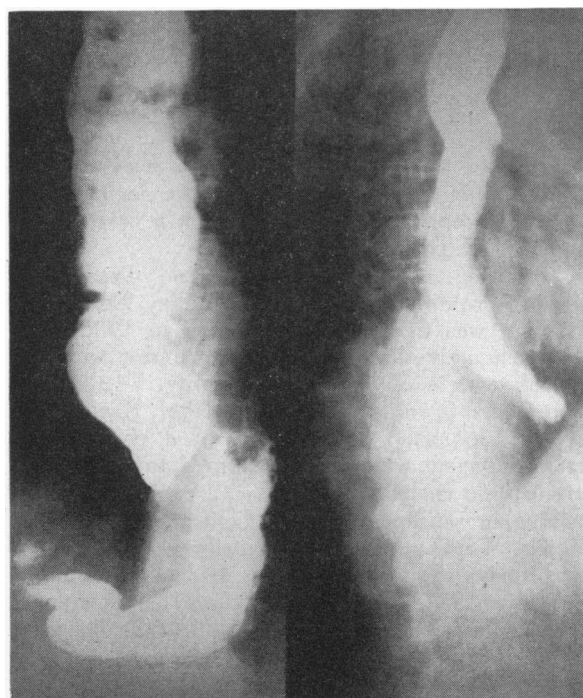
When this maneuver is executed the patient experiences a sharp pain. The success, however, is not dependent upon the amount of pain the patient feels.



A

B

Figure 6.—Patient before (a) and after (b) brusque dilatation of cardiospasm.



A

B

Figure 7.—X-ray pictures of the esophagus in a case of cardiospasm. (a) Before treatment. (b) After treatment. In this case the esophagus has shrunk to an almost normal size. More frequently it does not return to the normal.

Until a short time ago I was convinced that success could be obtained only when the constricting ring is caught in the condition of spastic contraction. The hand of the operator will feel a most marked resistance which has to be overcome with a certain amount of force and which causes a most disagreeable feeling of tearing apart of tissue. I still feel that usually success is obtained only if this sensation is felt by the hand of the operator, and that if no resistance is felt there will be no success and the procedure has to be repeated in a week or so. In most cases the cure succeeds in one single session. In some additional cases two dilations may be necessary and in one case five sessions were needed until finally the constricting musculature was caught in a condition of spasm. Quite recently however, a case was observed in which the operating hand did not feel any resistance whatsoever and in which, nevertheless, complete cure was obtained.

The patient is observed for one day and when on the next day he tries to eat his breakfast he will be able to swallow without any difficulty for the first time in many years. This success as seen with the eyes of the patient is overwhelming and I do not know of any patient who is more grateful than the patient treated for cardiospasm.

The result is usually a dramatic one. The patient starts picking up weight at once. Figure 6 shows a patient before and three months after treatment. Formerly I believed that in spite of the good results the esophagus would never shrink to normal size again, but more recent experiences have made me more optimistic on this point. Figure 7a shows a case of cardiospasm at the time of the operation. Figure 7b shows the same esophagus eight months later. It has shrunk to about half its former size.

The results are shown in Table I. One case remained uncured, a 24-year-old girl in whom repeated dilation with every type of dilator was unsuccessful. Unfortunately she had a severe mitral stenosis so that thoracic surgery could not be undertaken. In one case there was a probable recurrence.

A complete success was obtained in 24 cases, which is a total of 92.3 per cent. No fatalities have occurred in this series and only three minor complications were seen. In two cases there was some peritoneal irritation which subsided after two days. The vagus shock observed in another case, lasted only a few minutes.

4. Surgical Procedures:

The fourth therapeutic possibility, that of thoracic surgery with esophagoplasty, will obviously become necessary only in most exceptional cases. It may

TABLE 1.—Cases of Cardiospasm Treated with Brusque Dilatation

Failure	Probable Recurrence After Cure	Complete Success	Total	Fatalities	Complications	
					Mild Peritoneal Irritation	Vagus Shock
1	1	24 (92.3%)	26	0	2	1

be, however, that a patient suddenly gets a complete occlusion so that not even a drop of water may pass the cardiospasm. Then gastrostomy must be performed if no expert is at hand able to carry out the described method of dilatation. In Paris, this writer treated a man who for ten years had been lying in the hospital of Vaugirard with a stomach fistula and who had been fed constantly through this fistula. He was cured by one single brusque dilatation. It is my opinion that we can avoid seeing such cases by the use of the proper procedure.

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California's Plan for the Study and Control of Mosquito-Borne Diseases[†]

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THE California legislature has initiated an extensive program for the prevention of mosquito-borne diseases by appropriating \$600,000 for this activity during the present biennium. In the Act it was recognized that further research is necessary to increase the effectiveness of such work. The purpose of this discussion is to describe the administrative approach to this rather complex epidemiologic and disease-control problem. Results of the first year's investigative activities wait upon laboratory examinations now being conducted.

Written records of mosquito-borne disease in California extend back to the days of '49 when malaria was a scourge. Military reports² for July-September 1853 state that the incidence was 816 cases per 1,000 men in Northern California posts. Malaria continued to be a major health problem for decades; as late as 1909, Dr. William F. Snow, Secretary of the State Board of Health, termed it the "minataur" of California.

In 1903, the first mosquito control work in California was undertaken in San Rafael. Sufficient interest was aroused for the passage in 1915 of a Mosquito Abatement District Act which provided that a community could organize its territory into a mosquito abatement district, with funds provided through a tax levy limited at first to 10 cents (now 40 cents) on each hundred dollars of property.

During the ten years following passage of this Act, 15 districts were organized and the incidence of malaria dropped 90 per cent—from a case rate of 17.9 to 1.7 per 100,000.

However, another mosquito-borne disease has become prominent in the Central Valley. Encephalomyelitis was first recognized there in 1930 when approximately 6,000 horses and mules were affected, with a 50 per cent mortality. The malady reappeared in subsequent years, Meyer, Haring, and Howitt³ reported the isolation of a virus as the etiologic agent which later became known as Western equine encephalomyelitis.

Human encephalitis in California, following World War I, occurred primarily in urban areas and during the winter months. It declined to a low point in 1933. Thereafter, the reported incidence of encephalitis began to rise again but the character of the disease was quite different: it was largely a summer disease and appeared in the same rural areas where equine encephalomyelitis was known. Studies¹ proved that the Western equine and St. Louis viruses cause human as well as horse disease and that mosquitoes are a vector. One thousand, three hundred and eighty-three human cases and 453 deaths were reported during the ten-year period 1936-1945. The state was also faced with a possibility of serious human outbreak, such as the mid-western experiences, and the possible importation of Japanese B encephalitis.

Besides the concern with this disease picture, water and power development and expanding

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